

[S7 Renewable Energy]
Smart House and Office Building Technology

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Summary

Japan, as a country poor in natural resources, had suffered from critical oil crisis twice, and had faced various environmental problems such as atmospheric and water pollution during the process of rapid economic development in the past.

Understanding that global warming is one of the most important universal issues, which requires urgent and collective efforts of the global community, Japan set a target of reducing greenhouse gas emission (GHG) of 25% by 2020, if compared to the 1990 level, which is premised on the establishment of a fair and effective international framework in which all major economies participate and on agreement on their ambitious targets. It is estimated that more than half of GHG comes from activities in urban area, such as office and commercial buildings, households and transportation. Urban planning owes large responsibility of reducing GHG emission.

Current urban planning policy supports prevalence of such good practices and focuses on development of “compact city” which concentrates urban facilities into central area and improves accessibility by public transportation network, understanding that such a city with compact structure will contribute to establish low-carbon society.

According to the data of the energy consumption in Japan by sectors in 1990 and 2008, manufacturing sector decreased by 12% but other sectors have increased such as transportation 9%, households 35%, offices 41% and energy conversion 14%. The share of office and household is 36%, transportation 21% and manufacturing 37%. Therefore, the save energy effort in office, household and transportation is the keen problem.

Former Prime Minister Hatoyama’s proclamation in UN maybe achieved if we can decrease by half in office and household and 10 to 20% in transportation and manufacturing. Transportation sector is now doing two big efforts to reduce carbon emission. One is the introduction of hybrid engine or electric automobile and another is the promotion of public transportation. Manufacturing sector may continue their effort and realize the less carbon emission production system. The problem would be office and household sector. There are some proposals from private sector on the matter. They are aiming 50% cut of CO2 emission in near future and total cut in the long future.